# INSTRUCTIONS IN PISTOL MARKSMANSHIP UNITED STATES MARINE CORPS

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1. "Instructions in Pistol Marksmanship" is adopted and issued to the United States Marine Corps.

2. With slight modifications it is a reprint of "Instructions in Learning Accurate Pistol Shooting" which is copyrighted and published by Gunnery Sergeant John M. Thomas, United States Marine Corps, 1922.

3. Only a limited number of copies have been printed and care will be exercised to see that these pamphlets are not lost, given away, or otherwise disposed of. The pamphlet referred to in the second paragraph is still being published by the author.

JOHN A. LEJEUNE,
*Major General Commandant,*
*United States Marine Corps.*

Approved:
EDWIN DENBY,
*Secretary of the Navy.*

# INSTRUCTIONS IN PISTOL MARKSMANSHIP.

**Physical condition.**—To obtain the best results, one should be in good physical condition. Any bodily ailment will have a marked effect on the nervous system.

A man can do his best shooting in his every-day condition; if he trains he is likely to do more harm than good. He should take enough exercise to keep the digestive organs in good working order, but he should avoid excessive exercise that will make the muscles or joints stiff or sore. The shooter is not at his best when the muscles or joints are in this condition. When practice is taken in either the shooting position or in actual firing, the shooter should stop as soon as he becomes unsteady. To go beyond this period the shooter is very likely to develop a habit of flinching.

If you smoke or use tobacco in any form, do so when you go on the range or enter a pistol match. Of course smoking to excess will react on the nervous system, as eating to excess will affect the digestion, and that in turn will affect the nervous system. There are many fine pistol shots who have smoked for years. On the other hand, there are probably just as many who have never used tobacco at all.

To sum up: Eat as you ordinarily would, keep up your normal habits, sleep regular hours, and try to avoid an amount of exercise or practice that would make the muscles or joints the least bit stiff or sore.

**Anyone can become a fine pistol shot.**—Fine pistol shooting is merely a matter of doing several things well, and the better a person does these things the better results he will obtain. The points of fine pistol shooting are as follows:

(*a*) Getting in the proper shooting position.
(*b*) Gripping the pistol properly.
(*c*) Aiming correctly.
(*d*) Developing a good trigger squeeze.

The first three of these are comparatively easy, but the last is more difficult, in that it requires a steady increase of pressure on the trigger. The time consumed in squeezing the trigger is regulated in accordance with the rapidity of fire desired, but always in such a manner that the firer will not know the exact instant the pistol will be discharged. All of these points are covered in other paragraphs. A man is not born a fine pistol shot; he learns it. Some learn it more quickly than others, due to the fact that they realize the importance of the points mentioned above sooner than those who are by nature more slow to learn. The beginner's progress in pistol shooting depends entirely upon his ability to master the points mentioned above.

**Excuses given for poor shooting.**—Any man who passes the physical examination that he must pass to enlist in the Marine Corps has no excuse for not being able to learn to do not only good shooting but fine pistol shooting. Of all the accomplishments the marine should have, fine shooting is more important than all the rest.

**Nervousness.**—Some men say that they are too nervous to do good pistol shooting. As a matter of fact this nervousness of the hand and arm affects the point of impact of the bullet very slightly, due to the fact that the whole arm, hand, and gun are shaking, but the barrel remains nearly parallel to the line of sight, and therefore the muzzle is being deflected very little. However, this nervousness may be eliminated in a short time by going through the following exercise: Take the shooting position as explained in the paragraph describing correct shooting position, and squeeze the trigger in such a manner that it will not be known when the hammer is going to fall. By continuing the aim until after the hammer has fallen any deflection of the muzzle

caused by a faulty trigger squeeze can be seen. This exercise will also indicate where the hit should have been; this is known as calling the shot. Care should be taken in going through this exercise that you grip the pistol and do everything else as you would in actual firing. Ten to fifteen minutes of this exercise daily will soon eliminate nervousness of the hand and arm, and will also greatly improve your trigger squeeze.

**Strong eyesight is not necessary.**—Some men say that their eyesight is not strong enough to do fine pistol shooting. Strong eyesight is not necessary; some of the best pistol shots in the world are men whose eyesight is far below normal and who are compelled to wear glasses for defective sight. The "L" target has a bull's-eye 5 inches in diameter; a man's eyes must be weak indeed if he has trouble in seeing this bull's-eye at the extreme range of 50 yards.

**Shell shock.**—In nearly all cases shell shock is nothing but a faulty trigger squeeze which can be overcome by careful practice.

**Some men say that they can not learn to shoot.**—The reason why is because they have never given it their best effort. It is not nearly as hard to learn as the driving of an automobile. A man in the service should remember that as a soldier it is his primary duty to learn to shoot straight; there is no telling when his life may depend on his ability to shoot accurately.

**The disadvantage of shooting left handed.**—The left-handed shooters are at a disadvantage. The caliber .45 automatic pistol is made for a right-handed shooter. The rule in the qualification course, and in all rapid and quickfire matches, is that the pistol must be held at the "raise pistol," with the safety lock on and the finger out of the trigger guard until the target starts to move. The safety lock being on the left side, the right-handed shooter can unlock the pistol by a slight movement of the thumb as the pistol is thrust to the shooting position. This movement of the thumb does not

necessarily interfere with the grip of the pistol. But the left-handed shooter must do one of two things: Use the other hand to unlock the pistol, which will consume valuable time in getting that hand back into position; or, worse still, he will have to loosen up the grip of the shooting hand to unlock with it. It requires the use of both hands to properly seat the pistol in the shooting hand; consequently the left-handed shooter in unlocking the pistol in that manner does not regain the proper grip. It is no harder for the left-handed man to learn to shoot right-handed, and only takes a little practice for the man who has already learned, to shift over and shoot as well right-handed as he did with the left hand. A man armed with the pistol is likely to fumble his pistol in drawing it with the left hand, should an emergency arise requiring its use quickly.

**The benefit of prone shooting.**—Prone pistol shooting is advantageous to the beginner, in that it allows a more steady hold and a better aim while the trigger squeeze is being learned. Another benefit of prone shooting is that it gives a higher standard of hold, aim, and trigger squeeze, to attempt to equal in the more unsteady off-hand position. Where the beginner tries to learn the trigger squeeze in the more unsteady off-hand position, he is likely to "snap-shoot" when the sights appear to be in the best alignment.

The most comfortable prone position is as follows: Lie straight toward the target, chest flat on the ground, arms extended to the front and the elbows close together, hold the pistol in accordance with the paragraph on the proper grip of an automatic pistol, except that the left hand grips the right hand as follows: The muscular part of the left thumb back of the muscular part of the right thumb, the end of the left thumb to the left of the right thumb, the fingers of the left hand overlapping and gripping the fingers of the right hand. Care must be taken to so place the left thumb that it will not be hit by the slide in its rearward movement.

**The amount to face the target for the standing position.**— For the average man this will be so that he is shooting to the right front. For those whose physical conformation will permit, it will be to the right, while the man with the short or stiff neck will find that he must face the target more in order to maintain a comfortable position. Choose a position where you are shooting as nearly to the right as possible and still retaining a comfortable position. Where the firer shoots directly to the right the line of recoil is in alignment with the arm, which is advantageous, whereas if the firer shoots to the front, the line of recoil is thrown out of alignment with the

Plate 1.

The correct prone shooting position, also showing the best position for the coach. Notice that the chest is as near flat on the ground as the conformation of the firer will permit; the position of the thumbs; that the hands are well to the front; and that the firer lies straight toward the target.

arm, just the distance from the eye, to a point over the shoulder. This is a disadvantage in that the recoil will throw the pistol up and to the left, which gives the wrist a painful twist, and the sights are harder to bring into alignment for the next shot if you are firing rapid or quick fire.

Care must be taken to face the target the same for every shot, as this will keep the sights the same distance from the eye on all shots. It will also aid you in lining the sights up quickly in rapid and quick fire.

**The correct shooting position.**—Having determined the amount to face the target, choose a level place on which to stand, the feet about 15 to 20 inches apart and turned out equally, the weight equal on both legs, the weight of the upper part of the body equal on the hips, shoulders on a line with the feet, head erect and turned toward the target, the arm extended to its full length, the muscles of the hand and wrist held rigid—but these are the only muscles so held—and outside of the muscles of the forearm, which grips the pistol, the flexor and extensor muscles of the arm are at rest; the pistol, hand, and arm being supported by the heavy muscles of the shoulder.

The distance the feet should be apart will vary according to the length of the legs and also to the direction and velocity of the wind. However, the feet should never be less than 15 and not more than 20 inches apart. They should be turned out equally, so that the firer will be well braced.

Beginners are likely to do one of two things with the weight which will put them in an uncomfortable position: Shift the weight of the upper part of the body to the right hip and the right leg; or they will go to the other extreme and crook the spine to the left, which gives them the appearance of holding up a heavy weight rather than a pistol the weight of which is less than 3 pounds.

The left hand should be in the pocket, for then the shoulder droops down and to the front. If the hand is placed on the hip the shoulder is raised and thrown back causing the chest to be arched, and with the chest arched the firer is likely to make the mistake of getting too much air in the lungs while aiming. During the aim the lungs should be only half full of air.

In holding the breath, draw into the lungs a deep breath and let about half of it out, holding the rest by closing the throat and mouth, and not by a muscular effort of the diaphragm. In rapid and quick fire, the inhaling and partial exhaling must be begun as soon as the target starts to move, and done quickly.

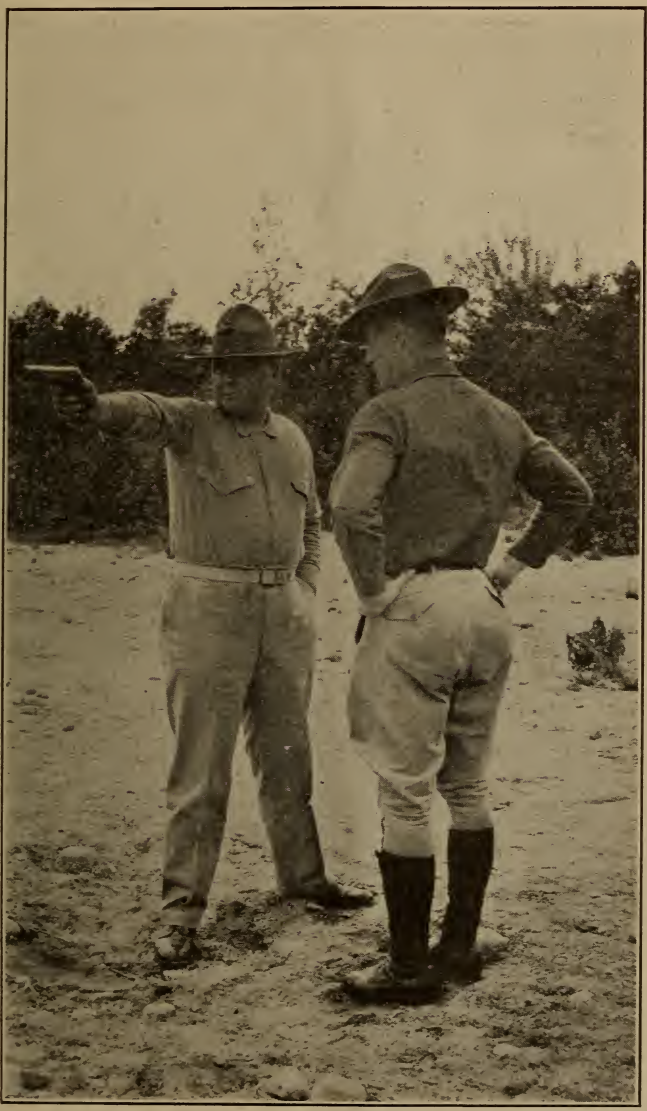

Plate 2.

Oblique view of firer in correct shooting position.

Note the most advantageous position of the coach for slow and rapid fire.

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Plate 3.

Front view showing firer in correct shooting position and the coach in the best position for observing the flight of the bullet.

In turning the head to the right, be careful not to turn the shoulders also. This twisting of the spine, while it may not be noticed by the firer, will cause him to be under an unnecessary strain that will affect his steadiness.

In keeping the head erect, your eye is the same distance from the sights for each shot, which gives you greater uniformity of aim than could be obtained if the head were leaned forward for one shot and erect or back for the next.

The straight-arm position is the only way in which you can place the sights the same distance from the eye for each shot. Where the sights are not the same distance for each shot, the firer will unconsciously shoot with slight errors of aim that would be noticed and avoided if this distance were the same at all times. The straight-arm position is the only one that enables the firer to get the line of recoil in alignment with the arm, and this is important in firing large caliber pistols for two reasons: First, the wrist can best resist the recoil and align the sights for the next shot where the pistol is thrown up by the force of the recoil; second, where the line of recoil is not in alignment with the arm, the wrist is bent at a more acute angle and consequently the recoil will force the pistol more to the left, thereby giving the wrist a bad twist that is painful, and will soon cause the firer to flinch. The straight-arm position can be assumed quickly by simply thrusting the arm out to its full length, whereas the crooked-arm position requires more time and thought to assume. The arm is never bent the same on all shots, and this will change the distance from the eye to the sights, it will also cause the wrist to be bent more when the crook of the arm is greatest thereby changing the flip of the pistol. From a standpoint of comfort there is no question of the straight-arm being the best, due to the fact that, outside of the muscles used in gripping the pistol, the extensor and flexor muscles are at rest, the heavy shoulder muscles supporting the pistol, hand, and arm. With the crooked arm position the extensor muscles are the only ones at rest. Accurate shooting re-

quires the coordination of all the muscles in use, therefore, the fewer muscles you bring into play the better coordination you will have.

**The proper grip of an automatic pistol.**—Force the pistol well down into the hand with the barrel in direct prolongation of the fore-arm, then let the trigger finger come where it will on the trigger. If it comes on the joint so much the better, but do not twist the pistol in the hand to make the joint of the finger come on the trigger. It is of primary importance that the barrel be straight with the forearm, in order that the line of recoil will be in alignment with the arm. This is necessary with all large caliber pistols; otherwise the recoil will give the wrist a bad twist that will soon cause the firer to develop the habit of flinching. (See test of grip.) Put the side of the joint of the thumb against the pistol so that a pressure of the thumb will work against the pressure of the forefinger on the opposite side of the pistol; the face of the thumb should be toward the target at all times. The thumb if pointed down will have a bad effect on the flip of the pistol when it recoils. All men when first learning to shoot the pistol have difficulty in keeping the thumb up. They are inclined to grip the pistol with the face of the thumb, and to drop it down to where it will touch the end of the second finger. This position of the thumb interferes with the grip of the pistol, and there is no pressure working against that of the forefinger. It is important that this pressure be exerted on a level with, and straight across from the forefinger. This pressure is, in amount, just enough to counteract the pressure of the forefinger. It is not a part of the grip that holds the pistol. The grip that holds the pistol is on the left diagonal when it is held in the shooting position. Or in other words, from the left front of the pistol to the right rear when held in the shooting position. The grip that holds the pistol is just tight enough, so that when it is fired the recoil will not change the position of the pistol in the hand, and so that the pistol can be held with the same grip

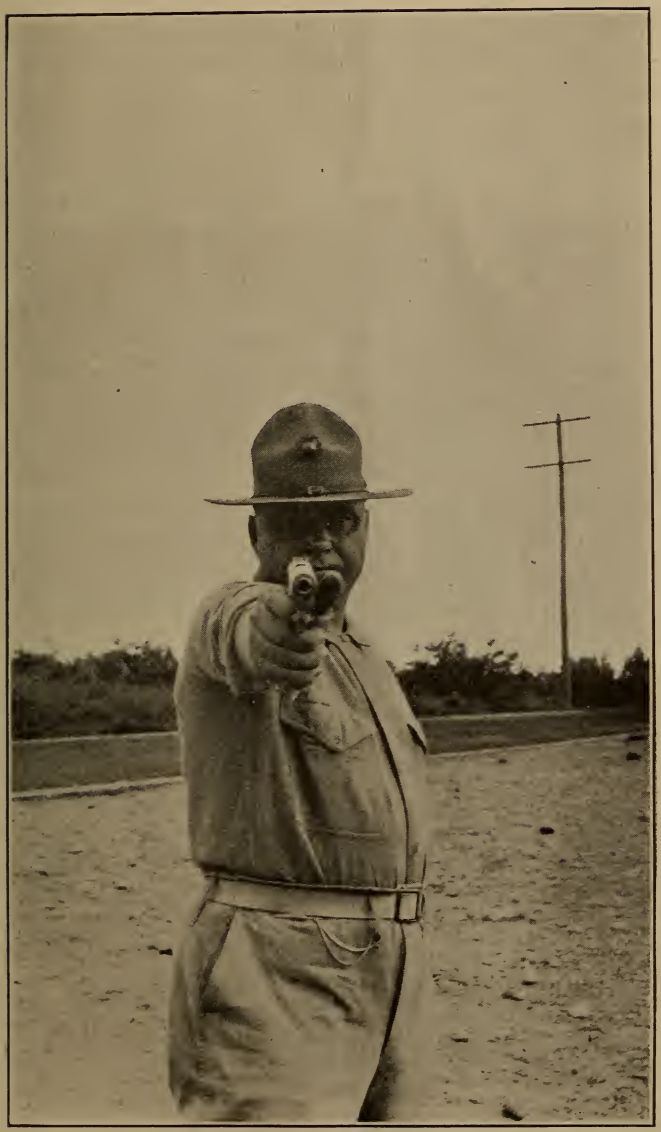

Plate 4.
A close up view of the proper grip of an automatic pistol.

and the same amount of pressure from the first shot to the last without renewing the grip during the entire string. A good bit of time in rapid and quick fire can be lost by having to shift the pistol back into position after each shot, as would be the case in a grip that was too loose. The muscles of the hand and wrist should be held rigid. These are the only muscles so held. For those with hands inclined to be short and well muscled, the following is a good test that the proper grip of the pistol has been taken:

The hammer will slightly pinch the hand against the horn of the pistol when the slide is in its rearmost position. However, this pinching is so slight that it will not be noticed in shooting unless the hand is exceptionally well muscled, in which case a leather glove with the thumb and fingers cut out should be worn while firing.

**The grip of a revolver.**—The grip of a revolver is the same as that mentioned in the last paragraph except the pressure that holds the revolver is from the left (when held in the shooting position) working against an equal amount of pressure from the right, and partly by the muscular part of the thumb exerting a pressure against an equal amount of pressure from the right front of the revolver.

**The correct aim.**—The caliber .45 automatic pistol is sighted so that at 15 yards the point of aim is at the bottom of the bull's-eye, at 25 yards 2 inches of white line on the target is visible between the tops of the sights and the bottom of the bull's-eye, at 50 yards 4 inches, and at 75 yards back up against the bottom of the bull's-eye. The foregoing will give some idea of the flatness of the trajectory. The tops of the front and rear sights are as near even as the eye can align them. The two strips of daylight on each side of the front sight must remain of uniform width.

A poorly instructed pistol shooter will, when high or low groups are being obtained, try to correct for it by seeing more or less front sight; the amount of front sight can not

be accurately judged in this manner. The correct thing to do is to keep the tops of the sights even, and aim at a lower or higher point as the case may be. Some men unconsciously fall into the habit of aiming over one side of the front sight. When the sun is to the right or left of the firer, some men will divide the amount of light instead of the amount of space on each side of the front sight.

**The focusing of the eye.**—The eye will focus on only one distance at a time, and as the front and rear sights on the pistol are in line of view when you look at the bull's-eye, your eye should at all times be focused on the bull's-eye. This will cause the sights to appear slightly blurred, but will give the shooter a clear definition of the bull's-eye at all times.

**Shooting with both eyes open.**—If one intends to follow the shooting game it is better to learn to shoot with both eyes open, as this will reduce the strain on the eye. To learn this, start the aim by closing the eye that is not to be used, and while you are aiming gradually open that eye. At first you will find that when you open the eye not being used you can not continue the aim, but after a little practice it will become easy. After you have practiced this for a while you will be able to start and continue the aim without closing either eye. What you have really done is to concentrate the vision on the aiming eye, and you do not see anything with the other.

**Aiming with the wrong eye.**—In shooting a pistol the arm and the pistol barrel should be as near in alignment as they can be brought. If a person is shooting right-handed and aiming with the left eye, or vice versa, he must bring the pistol farther over to the left or right, thereby bringing the recoil more out of alignment with the arm, the difficulties of which have been fully explained in the paragraph on the amount to face the target, and also in the subparagraph on the proper grip of an automatic pistol.

**Eye troubles.**—When a person is not accustomed to aiming, the eye waters a good deal, which can be partly overcome by

daily practice in aiming. A wind from the direction of the targets blows the powder gases back into the eye, which causes a blur. Shooting with glasses in a wind of this sort is advantageous. Never rub the eye when it blurs, as this will only make matters worse. Some blurs are caused by an excess amount of oil on the pistol and, when fired, the pistol throws the oil into the eye, where it forms a film. If you are shooting slow fire, when the eye blurs discontinue the aim for a short time, but keep looking at the target until the vision clears; then continue the aim. If the eye is closed to clear a blur, it will not be accustomed to the light when it is opened again, and only regains normal vision after it has been opened for a few seconds. If shooting in rapid or quick fire, one must, of course, shoot as well as possible through the blur. A good eye conditioner is a drop of 10 per cent solution of argyrol in the eye, followed about an hour later by the application to the eye of an eye-cup containing a 5 per cent solution of boric acid. When the cup is placed over the eye, the eye should be open so that the solution can easily reach all parts.

**When the shot group is not centered.** — This does not necessarily mean that the sights need adjustment. Several things may be the matter. Shot groups that are off to the side may be caused by the following: Dividing the amount of light instead of the amount of space on each side of the front sight; aiming over one side of the front sight and disregarding the other side, and trying to rush the trigger squeeze so as to fire the pistol while the sights look like they are in the best alignment. In this last error, which is the most common, the aim is not at fault, but the muzzle is deflected by the faulty trigger squeeze, due to the fact that in rushing the trigger squeeze in this manner the firer knows the exact instant the pistol will be discharged and, knowing this, he flinches, thereby deflecting the muzzle. Shot groups that are off center up and down are caused by the following: In shooting toward the sun, the light reflects back from the front sight, causing it to be so poorly

outlined that the shooter is likely to fire unconscious of errors of aim that would be plainly noticed and avoided if he were shooting away from the sun; and, also, by the firer trying to rush the trigger squeeze as mentioned above.

**Trigger squeeze.**—A man in learning to shoot the pistol goes through three distinct periods of trigger squeeze before he becomes an expert pistol shot. It has been said that there is more misconception of pistol shooting than of any other sport, and the greatest delusion of the novice is the trigger squeeze. The first period is the layman's idea of squeezing the trigger. It requires good coaching or a long period of experience for a man to pass from the first to the second period; but when the firer has mastered the second period he will unconsciously acquire the third period of trigger squeeze.

*First period of trigger squeeze.*—The novice thinks that all expert pistol shots wait until the sights are lined up perfectly and that they then give the trigger the added pressure to fire the shot, and that the added pressure should be given in such a manner that the firer will know the exact instant the pistol will be discharged. The man who does not break away from this kind of trigger squeeze will always remain a poor pistol shot. The giving of the added pressure in the above-mentioned manner will deflect the muzzle enough to make the shot go wild, but the greatest deflection of the muzzle comes when the muscles of the arm are stiffened and the arm thrust forward to meet the force of the recoil. This involuntary action of the muscles of the arm and shoulder can be controlled in only one way, and that is done by firing the shot in such a manner that the firer does not know the exact instant the discharge of the pistol will occur.

*Second period of trigger squeeze.*—The firer should learn that the nervousness of the arm affects his shooting but little, because the natural unsteadiness of the arm moves the whole pistol, and the barrel remains nearly parallel to the line of sight; and that he should hold the pistol as near the correct aim as he can, letting it wave back and forth and up and

down but squeezing the trigger all of the time with a steady increase of pressure, and in such a manner that he will not know when the discharge will occur. He must avoid trying to squeeze the trigger faster when the sights are in perfect alignment than he does when the sights are slightly out of alignment. The man who has learned this second period of trigger squeeze can shoot well enough to qualify as expert pistol shot.

*Third period of trigger squeeze.*—This consists of squeezing the trigger only when the sights are in perfect alignment and, when they get out of alignment, to hold what has been squeezed on the trigger until the sights are again lined up perfectly, then to squeeze the trigger again with the same steady increase of pressure, and to continue this until the pistol is discharged in such a manner that the firer does not know the exact instant of the discharge. This is not so hard to do in slow fire, but in rapid and quick fire the time limit on firing a string of shots makes it far more difficult to acquire. Where rapidity of fire is called for, the shooter should do some things quickly in order to have more time to spend on the trigger squeeze; that is, he should practice thrusting the gun from the "raise pistol" to the shooting position, and during this thrust of the pistol the safety lock should be thrown off. Accuracy in thrusting the pistol to the shooting position is important, for then you do not have to move the sights so far in aligning them. The grip of the pistol should be uniform, for then when the recoil comes the gun flips to the same place every time, which makes it easier to bring the sights into alignment for the next shot. The firer should acquire the habit of doing these things instinctively. The man who has learned this period of trigger squeeze and can apply it correctly in all classes of fire is the shooter who is found at the top in a pistol competition.

**Different from the rifle trigger squeeze.**—The pistol trigger squeeze is different from the rifle trigger squeeze, in that with the pistol you do not squeeze with the whole hand. The

movement of the trigger finger must not affect the grip of the hand by causing the other fingers to tighten or loosen their grip. Finger exercises that will give better control to the muscles of the hand are beneficial.

**Method of learning the trigger squeeze.**—To learn to squeeze the trigger properly, the firer should start off with prone pistol shooting, or firing from a muzzle and elbow rest, in order that the difficulties of learning it will not be increased by an unsteady hold and a poor aim. Where the firer uses a rest he is able to hold the pistol much steadier, and maintain a far better aim than could be hoped for in the off-hand position. After the method of squeezing the trigger has been learned, the off-hand position should be used. The method of squeezing the trigger in slow, rapid, and quick fire, is the same except that where time is an element in the firing of a string of shots the squeeze is faster, but still in such a manner that the shooter does not know the exact instant of the discharge. When the shooter can get good scores in slow fire, he should advance to the more difficult classes of fire, which are rapid and quick fire.

**When to use the second and third periods of trigger squeeze.**—A man who has started his pistol training with prone or muzzle-rest shooting can apply the third period of trigger squeeze in slow fire, but when he comes to the more unsteady off-hand position, he will have to resort to the second period of trigger squeeze until the nervousness of the arm has been overcome by practice. The trigger squeeze can be learned in the off-hand position, but it requires a longer period of practice, and the flinching habit in some cases is likely to become set due to the unsteady position before the firer has had time and practice enough to acquire the proper trigger squeeze. In rapid and quick fire the second period of trigger squeeze should be used; and in these two classes of fire the passing from the second to the third period of trigger squeeze will be acquired unconsciously.

**The most frequent errors of the new shooters.**—(1) failure to throw the safety lock off for the first shot in rapid and

quick fire. (2) Failure to fill the magazine with the correct number of cartridges. (3) Not shoving the magazine all the way up when it is inserted; therefore, in the act of loading, when the slide goes forward it does not strip the first cartridge out of the magazine and into the barrel. (4) In rapid and quick fire forgetting to release the trigger after each shot is fired. (5) Too much time lost in aligning the sights in rapid and quick fire by giving the pistol a flourish over the shoulder after each shot is fired. (6) Relaxing and then tightening the grip of the pistol in rapid and quick fire, which causes an unnecessary loss of time that could have been used to advantage in squeezing the trigger.

**Hip shooting compared to aiming.**—While it is a fact that the tales of hip shooting should not be taken too seriously it is not entirely a delusion. One can become proficient enough in this class of fire to group all of his shots in a 20-inch circle at 15 yards; but a shooter with the same amount of practice, shooting in the ordinary way, can maintain a shot group of 2 inches in diameter at the same distance.

# EXTRACT FROM PISTOL MARKSMANSHIP MANUAL.

[Paragraphs 81–90; 119.]

## Chapter 11.

### INSTRUCTION PRACTICE.

81. **Tabulation.**—The following tables prescribe the firing in instruction practice in the order followed by the individual soldier. Target "L" is used in much of the practice, as the bull's-eye makes competition keener and shows up errors as no other target can.

82. **Slow fire.**—

Table 1.—*Slow fire—Target "L."*

| Range. | Time. | Scores, minimum. |
|---|---|---|
| 15 yards | No time limit | 2 |
| 25 yards | do | 2 |
| 20 yards | do | 1 |

Unlimited time is permitted in slow fire in order to permit proper explanation of the causes of errors and indication of corresponding remedies. It is intended to be the elementary phase of instruction in the proper manipulation of the weapon and for determining and correcting the personal errors of the firer.

83. **Rapid fire.**—

Table 2.—*Rapid fire—Target "L."*

| Range. | Time. | Scores, minimum. |
|---|---|---|
| 15 yards | 1 score in 30 seconds and 1 score in 15 seconds. | 2 |
| 25 yards | 1 score in 30 seconds and 1 score in 20 seconds. | 2 |



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Time is taken at the firing point. The target being up, the soldier stands with weapon at "Raise pistol", loaded and locked. The command "Commence firing" is given and the soldier must fire seven shots within the prescribed limit of time, at the end of which the command "Cease firing" will be given. Intervals of time are measured from the last words of the command.

84. **Quick fire.**—

TABLE 3.—*Quick fire—Target "E"—Bobbing.*

| Range. | Time. | Scores, minimum. |
|---|---|---|
| 15 yards | 2 seconds per shot | 2 |
| 25 yards | 3 seconds per shot | 2 |

The target is operated as a bobbing target. Three to five seconds after notice is received at the pit that all is ready at the firing point the target is alternately exposed to view and turned away from view of the firing point; exposures are of 2 or 3 seconds duration, depending upon the range, with an interval of 3 to 5 seconds between exposures. The soldier stands at the firing point at "Raise pistol." The pistol is loaded and locked. Upon the first exposure of the target the soldier fires one shot at it before it disappears. He fires one shot at each reappearance until seven shots have been fired. The weapon is held between shots at "Raise pistol." The value of a hit on this target is 1.

85. **Skirmish run.**—

TABLE 4.—*Skirmish run—Target "E"—Bobbing.*

| Range. | Time. | Shots. |
|---|---|---|
| 50 yards | 5 seconds per shot | 2 |
| 25 yards | 3 seconds per shot | 2 |
| 15 yards | 2 seconds per shot | 3 |

This firing is to introduce the element of moving forward. The soldier halts to fire. Considerable loss of accuracy would result from firing while walking or running.

Men to fire are formed in line at the 50-yard point, each opposite his own target, pistols loaded, locked, and held at "Raise pistol." The targets are edge to the front.

Four or five seconds after the pit is notified that all is ready at the firing point, targets are exposed twice for 5 seconds, with an interval of 2 to 5 seconds between exposures. The men fire one shot at each exposure. An interval of 10 seconds is then allowed, during which time the line advances at double time to the 25-yard point by command of the instructor, alignment being maintained.

At the expiration of the 10-second interval the targets are exposed twice for 3 seconds, with an interval of 2 to 5 seconds between exposures. The men fire one shot at each exposure. An interval of 7 seconds is then allowed while the line advances as before at double time to the 15-yard point. At the expiration of the 7 seconds the targets are exposed three times for 2 seconds, with an interval of 2 to 5 seconds between exposures. The men fire one shot at each exposure.

Pistols are locked before moving forward and are held at "Raise pistol" between shots. Visual signals should be used in the pit in order that the commands for exposing the targets may not be heard at the firing line.

## Chapter 12.

### RECORD PRACTICE.

86. **Tabulation.**—The following tables prescribe the firing in record practice in the order followed by the individual soldier. The procedure is as in instruction practice.

87. **Slow fire.**—

Table 5.—*Slow fire—Target "L."*

| Range. | Time. | Scores. |
|---|---|---|
| 25 yards | No time limit | 1 |
| 50 yards | No time limit | 1 |

88. **Rapid fire.—**

TABLE 6.—*Rapid fire—Target "L."*

| Range. | Time. | Scores. |
|---|---|---|
| 15 yards | 15 seconds per score | 2 |
| 25 yards | 20 seconds per score | 2 |

89. **Quick fire.—**

TABLE 7.—*Quick fire—Target "E"—Bobbing.*

| Range. | Time. | Scores. |
|---|---|---|
| 25 yards | 3 seconds per shot | 2 |
| 50 yards | 5 seconds per shot | 2 |

90. **Qualification.**—The record course, as above prescribed, is the qualification course. No separate course is fired as an expert test. The scores for qualification are as prescribed in the following paragraph:

119. **Requirements, dismounted course.**—The requirements for qualification in the several grades of marksmanship, dismounted, are given in the following table:

*Classification, dismounted.*

| Grade. | Average percentage in slow, rapid, and quick fire. |
|---|---|
| Pistol expert | At least 80 |
| Pistol sharpshooter | At least 70 |
| Pistol marksman | At least 60 |
| Unqualified | Less than 60 |

In applying the provisions of the above table the soldier's percentage is obtained as follows: Find the percentage of the total slow-fire score; find the percentage of the total rapid-fire score; find the percentage of the total quick-fire score; add these three percentages together and divide by 3 to give the final average percentage.

**Points on coaching men.**—The coach should never lay hands on the firer to correct his position, but should tell the shooter how to get into position, even though this method takes longer; it is embarrassing to the shooter to be shoved around into position. Make sure, by questions, that the firer understands the proper shooting position; gripping the gun correctly; aiming the gun correctly; and how the trigger must be squeezed. Have the firer squeeze the trigger several times without aiming, and when he says that the hammer falls so that he can not tell when it will fall, let him try aiming and squeezing the trigger until the coach believes by questioning the firer that he has mastered this; now load the gun and start prone shooting. If the shooter makes 75 per cent of the possible score at 25 yards, and 50 per cent of the possible score at 50 yards, advance him to the off-hand position. Do not advance the firer to the more difficult classes of fire (rapid and quick fire) until he has mastered the trigger squeeze in slow fire. To advance the shooter too rapidly is very liable to bring on flinching, and once the flinching habit has become set, it is hard to overcome. The position of the coach, while the firer is in the prone position, is lying with his left side toward the target, and far enough forward that he can see the firer's aiming eye, and occasionally watch the movement of the trigger finger. The position of the coach in slow and rapid fire (off-hand position) is the same as mentioned for the prone position, except the coach is standing. In quick fire the position of the coach is back of the firer, and with his eye as near in alignment with the flight of the bullet as the shooter's head will permit; this position of the coach is for the purpose of watching the flight of the bullet, that he may caution the firer where each shot is going, and thereby correct his point of aim should the firer be consistently missing the target at any one point. The shooter will reflect the attitude of the coach; that is, if the coach is careless in his instructions on the shooting position, aiming, etc., the shooter will do these things in the same slip-shod manner;

whereas if the coach insists on exactness, the shooter will have more confidence in the coach and will put forth a greater effort to learn. For the first 8 or 10 months that a man is in the service he will try harder to learn than he will later on, and this period should be taken advantage of. The poorest shots should be put under the best coaches and given additional practice.

**Classification and medals.**—Pistol Marksmanship Manual prescribes the method of obtaining the final percentage as follows: Divide the total slow-fire score made by the possible score (140 possible score); divide the total rapid-fire score made by the possible score (280 possible score); divide the total quick-fire score made by the possible score (28 possible score); add these three percentages and divide by 3, which gives the final percentage. Eighty per cent or better in record practice qualifies the shooter as an expert pistol shot; 70 and under 80 per cent, pistol sharpshooter; 60 and under 70 per cent, pistol marksman; all under 60 per cent are unqualified. The value of hits on the bull's-eye target run from a count of 2 to 10; while the value of a hit on the bobbing target (quick fire) has a count of 1.

The classification as a distinguished pistol shot is permanent, and requires the winning of any three of the following medals:

(*a*) The medals won in the Marine Corps divisional, Marine Corps pistol match, Army Department, departmental, combined departmental, corps area, division, divisional, or Army pistol or revolver competitions.

(*b*) The medals won in the national individual pistol match, and the members of medal winning teams in the national pistol team match, regardless of whether the team represented the Marine Corps or not.

A gold medal emblematical of this classification will be issued to the shooter winning any three of the above-mentioned medals, which, if lost after being received by him, can be replaced by purchase only; authority for such replacement must be obtained by marines from headquarters,

United States Marine Corps. The pistol qualification badge should not be worn on the uniform with this medal.

**Table of percentages.**—The following table of percentages is for the purpose of quickly and accurately determining the final percentage of the firer. In the first column locate the total score of 25 and 50 yards slow fire, or the total score of 15 and 25 yards rapid fire, or the total score of 25 and 50 yards quick fire; directly opposite the score and under the proper heading will be found the percentage of the score made. The three percentages thus obtained should be added together and then divided by 3 to determine the final percentage of the shooter.

| Slow, rapid, and quick fire score. | Slow-fire percentage. | Rapid-fire percentage. | Quick-fire percentage. | Slow, rapid, and quick fire score. | Slow-fire percentage. | Rapid-fire percentage. | Quick-fire percentage. |
|---|---|---|---|---|---|---|---|
| 1 | $^{10}/_{14}$ | $^{5}/_{14}$ | $3\ ^{8}/_{14}$ | 15 | $10^{10}/_{14}$ | $5\ ^{5}/_{14}$ | $53\ ^{8}/_{14}$ |
| 2 | $1\ ^{6}/_{14}$ | $^{10}/_{14}$ | $7\ ^{2}/_{14}$ | 16 | $11\ ^{6}/_{14}$ | $5^{10}/_{14}$ | $57\ ^{2}/_{14}$ |
| 3 | $2\ ^{2}/_{14}$ | $1\ ^{1}/_{14}$ | $10^{10}/_{14}$ | 17 | $12\ ^{2}/_{14}$ | $6\ ^{1}/_{14}$ | $60^{10}/_{14}$ |
| 4 | $2^{12}/_{14}$ | $1\ ^{6}/_{14}$ | $14\ ^{4}/_{14}$ | 18 | $12^{12}/_{14}$ | $6\ ^{6}/_{14}$ | $64\ ^{4}/_{14}$ |
| 5 | $3\ ^{8}/_{14}$ | $1^{11}/_{14}$ | $17^{12}/_{14}$ | 19 | $13\ ^{8}/_{14}$ | $6^{11}/_{14}$ | $67^{12}/_{14}$ |
| 6 | $4\ ^{4}/_{14}$ | $2\ ^{2}/_{14}$ | $21\ ^{6}/_{14}$ | 20 | $14\ ^{4}/_{14}$ | $7\ ^{2}/_{14}$ | $71\ ^{6}/_{14}$ |
| 7 | 5 | $2\ ^{7}/_{14}$ | 25 | 21 | 15 | $7\ ^{7}/_{14}$ | 75 |
| 8 | $5^{10}/_{14}$ | $2^{12}/_{14}$ | $28\ ^{8}/_{14}$ | 22 | $15^{10}/_{14}$ | $7^{12}/_{14}$ | $78\ ^{8}/_{14}$ |
| 9 | $6\ ^{6}/_{14}$ | $3\ ^{3}/_{14}$ | $32\ ^{2}/_{14}$ | 23 | $16\ ^{6}/_{14}$ | $8\ ^{3}/_{14}$ | $82\ ^{2}/_{14}$ |
| 10 | $7\ ^{2}/_{14}$ | $3\ ^{8}/_{14}$ | $35^{10}/_{14}$ | 24 | $17\ ^{2}/_{14}$ | $8\ ^{8}/_{14}$ | $85^{10}/_{14}$ |
| 11 | $7^{12}/_{14}$ | $3^{13}/_{14}$ | $39\ ^{4}/_{14}$ | 25 | $17^{12}/_{14}$ | $8^{13}/_{14}$ | $89\ ^{4}/_{14}$ |
| 12 | $8\ ^{8}/_{14}$ | $4\ ^{4}/_{14}$ | $42^{12}/_{14}$ | 26 | $18\ ^{8}/_{14}$ | $9\ ^{4}/_{14}$ | $92^{12}/_{14}$ |
| 13 | $9\ ^{4}/_{14}$ | $4\ ^{9}/_{14}$ | $46\ ^{6}/_{14}$ | 27 | $19\ ^{4}/_{14}$ | $9\ ^{9}/_{14}$ | $96\ ^{6}/_{14}$ |
| 14 | 10 | 5 | 50 | 28 | 20 | 10 | 100 |

| Slow and rapid fire score. | Slow-fire percentage. | Rapid-fire percentage. | Slow and rapid fire score. | Slow-fire percentage. | Rapid-fire percentage. |
|---|---|---|---|---|---|
| 29 | $20^{10}/_{14}$ | $10\ ^{5}/_{14}$ | 39 | $27^{12}/_{14}$ | $13^{13}/_{14}$ |
| 30 | $21\ ^{6}/_{14}$ | $10^{10}/_{14}$ | 40 | $28\ ^{8}/_{14}$ | $14\ ^{4}/_{14}$ |
| 31 | $22\ ^{2}/_{14}$ | $11\ ^{1}/_{14}$ | 41 | $29\ ^{4}/_{14}$ | $14\ ^{9}/_{14}$ |
| 32 | $22^{12}/_{14}$ | $11\ ^{6}/_{14}$ | 42 | 30 | 15 |
| 33 | $23\ ^{8}/_{14}$ | $11^{11}/_{14}$ | 43 | $30^{10}/_{14}$ | $15\ ^{5}/_{14}$ |
| 34 | $24\ ^{4}/_{14}$ | $12\ ^{2}/_{14}$ | 44 | $31\ ^{6}/_{14}$ | $15^{10}/_{14}$ |
| 35 | 25 | $12\ ^{7}/_{14}$ | 45 | $32\ ^{2}/_{14}$ | $16\ ^{1}/_{14}$ |
| 36 | $25^{10}/_{14}$ | $12^{12}/_{14}$ | 46 | $32^{12}/_{14}$ | $16\ ^{6}/_{14}$ |
| 37 | $26\ ^{6}/_{14}$ | $13\ ^{3}/_{14}$ | 47 | $33\ ^{8}/_{14}$ | $16^{11}/_{14}$ |
| 38 | $27\ ^{2}/_{14}$ | $13\ ^{8}/_{14}$ | 48 | $34\ ^{4}/_{14}$ | $17\ ^{2}/_{14}$ |

| Slow and rapid fire score. | Slow-fire percentage. | Rapid-fire percentage. | Slow and rapid fire score. | Slow-fire percentage. | Rapid-fire percentage. |
|---|---|---|---|---|---|
| 49 | 35 | 17 7/14 | 95 | 67 12/14 | 33 13/14 |
| 50 | 35 10/14 | 17 12/14 | 96 | 68 8/14 | 34 4/14 |
| 51 | 36 6/14 | 18 3/14 | 97 | 69 4/14 | 34 9/14 |
| 52 | 37 2/14 | 18 8/14 | 98 | 70 | 35 |
| 53 | 37 12/14 | 18 13/14 | 99 | 70 10/14 | 35 5/14 |
| 54 | 38 8/14 | 19 4/14 | 100 | 71 6/14 | 35 10/14 |
| 55 | 39 4/14 | 19 9/14 | 101 | 72 2/14 | 36 1/14 |
| 56 | 40 | 20 | 102 | 72 12/14 | 36 6/14 |
| 57 | 40 10/14 | 20 5/14 | 103 | 73 8/14 | 36 11/14 |
| 58 | 41 6/14 | 20 10/14 | 104 | 74 4/14 | 37 2/14 |
| 59 | 42 2/14 | 21 1/14 | 105 | 75 | 37 7/14 |
| 60 | 42 12/14 | 21 6/14 | 106 | 75 10/14 | 37 12/14 |
| 61 | 43 8/14 | 21 11/14 | 107 | 76 6/14 | 38 3/14 |
| 62 | 44 4/14 | 22 2/14 | 108 | 77 2/14 | 38 8/14 |
| 63 | 45 | 22 7/14 | 109 | 77 12/14 | 38 13/14 |
| 64 | 45 10/14 | 22 12/14 | 110 | 78 8/14 | 39 4/14 |
| 65 | 46 6/14 | 23 3/14 | 111 | 79 4/14 | 39 9/14 |
| 66 | 47 2/14 | 23 8/14 | 112 | 80 | 40 |
| 67 | 47 12/14 | 23 13/14 | 113 | 80 10/14 | 40 5/14 |
| 68 | 48 8/14 | 24 4/14 | 114 | 81 6/14 | 40 10/14 |
| 69 | 49 4/14 | 24 9/14 | 115 | 82 2/14 | 41 1/14 |
| 70 | 50 | 25 | 116 | 82 12/14 | 41 6/14 |
| 71 | 50 10/14 | 25 5/14 | 117 | 83 8/14 | 41 11/14 |
| 72 | 51 6/14 | 25 10/14 | 118 | 84 4/14 | 42 2/14 |
| 73 | 52 2/14 | 26 1/14 | 119 | 85 | 42 7/14 |
| 74 | 52 12/14 | 26 6/14 | 120 | 85 10/14 | 42 12/14 |
| 75 | 53 8/14 | 26 11/14 | 121 | 86 6/14 | 43 3/14 |
| 76 | 54 4/14 | 27 2/14 | 122 | 87 2/14 | 43 8/14 |
| 77 | 55 | 27 7/14 | 123 | 87 12/14 | 43 13/14 |
| 78 | 55 10/14 | 27 12/14 | 124 | 88 8/14 | 44 4/14 |
| 79 | 56 6/14 | 28 3/14 | 125 | 89 4/14 | 44 9/14 |
| 80 | 57 2/14 | 28 8/14 | 126 | 90 | 45 |
| 81 | 57 12/14 | 28 13/14 | 127 | 90 10/14 | 45 5/14 |
| 82 | 58 8/14 | 29 4/14 | 128 | 91 6/14 | 45 10/14 |
| 83 | 59 4/14 | 29 9/14 | 129 | 92 2/14 | 46 1/14 |
| 84 | 60 | 30 | 130 | 92 12/14 | 46 6/14 |
| 85 | 60 10/14 | 30 5/14 | 131 | 93 8/14 | 46 11/14 |
| 86 | 61 6/14 | 30 10/14 | 132 | 94 4/14 | 47 2/14 |
| 87 | 62 2/14 | 31 1/14 | 133 | 95 | 47 7/14 |
| 88 | 62 12/14 | 31 6/14 | 134 | 95 10/14 | 47 12/14 |
| 89 | 63 8/14 | 31 11/14 | 135 | 96 6/14 | 48 3/14 |
| 90 | 64 4/14 | 32 2/14 | 136 | 97 2/14 | 48 8/14 |
| 91 | 65 | 32 7/14 | 137 | 97 12/14 | 48 13/14 |
| 92 | 65 10/14 | 32 12/14 | 138 | 98 8/14 | 49 4/14 |
| 93 | 66 6/14 | 33 3/14 | 139 | 99 4/14 | 49 9/14 |
| 94 | 67 2/14 | 33 8/14 | 140 | 100 | 50 |

| Rapid-fire score. | Rapid-fire percentage. | Rapid-fire score. | Rapid-fire percentage. | Rapid-fire score. | Rapid-fire percentage. |
|---|---|---|---|---|---|
| 141 | 50 5/14 | 188 | 67 2/14 | 235 | 83 13/14 |
| 142 | 50 10/14 | 189 | 67 7/14 | 236 | 84 4/14 |
| 143 | 51 1/14 | 190 | 67 12/14 | 237 | 84 9/14 |
| 144 | 51 6/14 | 191 | 68 3/14 | 238 | 85 |
| 145 | 51 11/14 | 192 | 68 8/14 | 239 | 85 5/14 |
| 146 | 52 2/14 | 193 | 68 13/14 | 240 | 85 10/14 |
| 147 | 52 7/14 | 194 | 69 4/14 | 241 | 86 1/14 |
| 148 | 52 12/14 | 195 | 69 9/14 | 242 | 86 6/14 |
| 149 | 53 3/14 | 196 | 70 | 243 | 86 11/14 |
| 150 | 53 8/14 | 197 | 70 5/14 | 244 | 87 2/14 |
| 151 | 53 13/14 | 198 | 70 10/14 | 245 | 87 7/14 |
| 152 | 54 4/14 | 199 | 71 1/14 | 246 | 87 12/14 |
| 153 | 54 9/14 | 200 | 71 6/14 | 247 | 88 3/14 |
| 154 | 55 | 201 | 71 11/14 | 248 | 88 8/14 |
| 155 | 55 5/14 | 202 | 72 2/14 | 249 | 88 13/14 |
| 156 | 55 10/14 | 203 | 72 7/14 | 250 | 89 4/14 |
| 157 | 56 1/14 | 204 | 72 12/14 | 251 | 89 9/14 |
| 158 | 56 6/14 | 205 | 73 3/14 | 252 | 90 |
| 159 | 56 11/14 | 206 | 73 8/14 | 253 | 90 5/14 |
| 160 | 57 2/14 | 207 | 73 13/14 | 254 | 90 10/14 |
| 161 | 57 7/14 | 208 | 74 4/14 | 255 | 91 1/14 |
| 162 | 57 12/14 | 209 | 74 9/14 | 256 | 91 6/14 |
| 163 | 58 3/14 | 210 | 75 | 257 | 91 11/14 |
| 164 | 58 8/14 | 211 | 75 5/14 | 258 | 92 2/14 |
| 165 | 58 13/14 | 212 | 75 10/14 | 259 | 92 7/14 |
| 166 | 59 4/14 | 213 | 76 1/14 | 260 | 92 12/14 |
| 167 | 59 9/14 | 214 | 76 6/14 | 261 | 93 3/14 |
| 168 | 60 | 215 | 76 11/14 | 262 | 93 8/14 |
| 169 | 60 5/14 | 216 | 77 2/14 | 263 | 93 13/14 |
| 170 | 60 10/14 | 217 | 77 7/14 | 264 | 94 4/14 |
| 171 | 61 1/14 | 218 | 77 12/14 | 265 | 94 9/14 |
| 172 | 61 6/14 | 219 | 78 3/14 | 266 | 95 |
| 173 | 61 11/14 | 220 | 78 8/14 | 267 | 95 5/14 |
| 174 | 62 2/14 | 221 | 78 13/14 | 268 | 95 10/14 |
| 175 | 62 7/14 | 222 | 79 4/14 | 269 | 96 1/14 |
| 176 | 62 12/14 | 223 | 79 9/14 | 270 | 96 6/14 |
| 177 | 63 3/14 | 224 | 80 | 271 | 96 11/14 |
| 178 | 63 8/14 | 225 | 80 5/14 | 272 | 97 2/14 |
| 179 | 63 13/14 | 226 | 80 10/14 | 273 | 97 7/14 |
| 180 | 64 4/14 | 227 | 81 1/14 | 274 | 97 12/14 |
| 181 | 64 9/14 | 228 | 81 6/14 | 275 | 98 3/14 |
| 182 | 65 | 229 | 81 11/14 | 276 | 98 8/14 |
| 183 | 65 5/14 | 230 | 82 2/14 | 277 | 98 13/14 |
| 184 | 65 10/14 | 231 | 82 7/14 | 278 | 99 4/14 |
| 185 | 66 1/14 | 232 | 82 12/14 | 279 | 99 9/14 |
| 186 | 66 6/14 | 233 | 83 3/14 | 280 | 100 |
| 187 | 66 11/14 | 234 | 83 8/14 | | |

## DESCRIPTION OF THE AUTOMATIC PISTOL, CALIBER .45, MODEL OF 1911.

The automatic pistols, caliber .45, model of 1911, in the military service are marked on the right side, "Model of 1911, U. S. Army"; on the left side, "United States Property." They are also marked with the serial number of the pistol.

### COMPONENT PARTS.

Receiver.
Barrel.
Slide.
Plunger tube.
Slide-stop plunger.
Plunger spring.
Safety-lock plunger.
Slide stop.
Rear sight.
Front sight.
Link.
Link pin.
Barrel bushing.
Recoil spring.
Recoil-spring guide.
Plug.
Extractor.
Ejector.
Ejector pin.
Firing pin.
Firing-pin spring.
Firing-pin stop.
Hammer.
Hammer pin—
Hammer strut.
Hammer-strut pin.
Mainspring.
Mainspring cap.
Mainspring-cap pin.
Sear.
Sear spring.
Sear pin.
Disconnector.
Trigger.
Grip safety.
Safety lock.
Mainspring housing.
Housing pin.
Housing-pin retainer.
Lanyard loop.
Lanyard-loop pin.
Magazine tube. } Magazine.
Magazine base. } Magazine.
Magazine pins. (2) } Magazine.
Magazine loop. } Magazine.
Magazine spring. } Magazine.
Magazine follower. } Magazine.
Magazine catch.
Magazine-catch spring.
Magazine-catch lock.
Stocks, left and right.
Stock screws (4).
Stock-screw bushings (4).

### DETAILED DESCRIPTION.

The three principal parts of the pistol are the receiver, barrel, and slide.

The receiver has suitable guides for the reciprocating slide, and a hollow handle in which the magazine is inserted from below and locked in place by the magazine catch. The

magazine may be removed by pressure upon the checkered end of the magazine catch which projects from the left side of the receiver in a convenient position for operation by the thumb.

The trigger is seated in front of the handle in the trigger guard. In rear and above the handle the firing mechanism is arranged, comprising the hammer, sear, automatic disconnector, grip safety, and safety lock; also the mainspring and the sear spring. The mainspring is seated within the mainspring housing and held there by the mainspring cap pin. The mainspring housing also contains the mainspring cap and the housing pin retainer. The conical point of the latter protrudes slightly into the hole for the housing pin, engaging with the groove around the middle thereof, thereby holding the housing pin in place.

The sear spring has a rib on its lower end which fits into a slot in the rear wall of the magazine seat and keeps the spring from moving vertically. The mainspring housing, bearing against the rear of the spring, locks it in position and gives it the required tension. The hammer strut is attached to the hammer in rear of its pivot by means of the hammer strut pin. Its lower end rests in the mainspring cap.

Above the handle on the left side are the slide stop plunger and safety lock plunger with their ends protruding from the front and rear, respectively, of the plunger tube. The plunger spring is seated between the plungers and within the plunger tube and yieldingly holds them in position.

The ejector is seated at the top of the receiver near the rear and at the left side. It is held in place by the ejector pin.

The top of the receiver forward of the trigger guard has a semitubular extension which forms the seat for the rear portion of the recoil spring.

The barrel of the pistol is largest at the breech, and at the top has two transverse locking ribs, the forward edges of

which, together with the forward edge of the breech portion, serve to positively interlock the barrel with the slide when in the firing position. At its rear is an extension which facilitates the entrance of the cartridge from the magazine into the chamber. The rear end of the barrel is attached to the receiver by the link, link pin, and the pin of the slide stop, and swinging thereon can move a limited distance lengthwise and also in a vertical plane.

The side walls of the slide overlap the sides of the receiver, and being provided with longitudinal ribs corresponding with similar grooves at the top of the receiver, the slide is free to move longitudinally.

The slide has at its front end a strong tubular abutment which is in line with the forward portion of the receiver, and which permits the slide to move to the rear until the rear end of the abutment comes in contact with the shoulder in the receiver at its forward end, thereby positively limiting the rearward movement of the slide. The latter is therefore necessarily assembled to the receiver from the front, and is prevented from being thrown rearward from the receiver under any circumstances.

In the abutment or front end of the slide are seated the forward portion of the recoil spring and the plug, while the rear end of the recoil spring and the recoil spring guide are supported by the shoulder in the front end of the receiver.

The barrel bushing fits into the front end of the slide, supports the muzzle end of the barrel, and holds the plug and recoil spring in place.

When the slide and the barrel therein are mounted upon the receiver and the slide stop is in its place, so that the pin part of the slide stop locks the barrel to the receiver through the link, the slide is thereby positively locked in place upon the receiver.

The firing pin, firing-pin spring, and shell extractor are carried in the rear of the slide and locked by the firing-pin stop. By pressing the firing pin forward so as to clear the firing-

pin stop, the latter is released and may be removed downwardly, leaving both firing pin and extractor free for removal.

The slide stop consists of the pin part, which serves as a pivot and passes through the link, and a body, on which is a thumb piece, for releasing the slide from the open position.

The safety lock consists of a thin plate, a projecting pin, a thumb piece, and a projecting stud. The pin part serves as a pivot for the safety lock and is at the same time a pivot for the grip safety. The upper corner of the plate has an angle which will fit into a correspondingly shaped recess in the slide. When the slide is in its forward position, and the hammer is full cocked, the safety lock may be pushed up manually, by means of the thumb piece, thereby positively locking the hammer and the slide. While the safety lock is being pushed up into the locking position the stud on the safety lock is being carried upward and it finally stands in rear of the lower arm of the sear, blocking the sear, and causing the locking of the hammer. If the safety lock is pressed down so as to release the slide the projecting stud on the safety lock clears the sear, permitting the sear to be operated by the trigger, thereby causing the release of the hammer if the grip safety is pressed inward, as by the hand grasping the handle of the pistol, and the trigger is pulled.

The grip safety is pivoted in the upper part of the receiver. Its lower part projects from the rear face of the handle under pressure of the short leaf of the sear spring, thereby locking the trigger whenever the handle of the pistol is released. But when the handle is grasped, as in the firing position, the grip safety releases the trigger without requiring the attention or thought of the firer.

The automatic disconnector is mounted in the receiver in rear of the magazine seat. In the underside of the slide and near its rear end, a recess is provided which stands above the top of the disconnector when the slide is in the

forward firing position. With the slide in this position the disconnector is raised to its operative position by the center leaf of the sear spring and it then will transmit the movement of the trigger to the sear. The forward surfaces of the recess of the slide and of the projecting end of the disconnector are inclining, so that the rearward movement of the slide depresses the disconnector until the slide again returns to its forward position. In this depressed position of the disconnector the trigger is disconnected from the sear, allowing the sear to reengage the hammer. This arrangement automatically and positively prevents the firing of the pistol except when all its parts are in the fully closed and locked firing position, and it also prevents more than one shot from following each pull of the trigger.

### TO DISMOUNT AND ASSEMBLE THE PISTOL.

Remove the magazine by pressing the magazine catch.

Press the plug inward and revolve the barrel bushing until the plug and the end of the recoil spring protrude from their seat, releasing the tension of the spring. Draw the slide rearward until the smaller rear recess in its lower left edge stands above the projection on the thumb piece of the slide stop; press gently against the end of the pin of the slide stop which protrudes from the right side of the receiver above the trigger guard and remove the slide stop.

This releases the link, allowing the barrel, with the slide, to be drawn forward together from the receiver, carrying with them the barrel bushing, recoil spring, plug, and recoil spring guide.

Remove these parts from the slide by withdrawing the recoil spring guide from the rear of the recoil spring, and drawing the plug and the recoil spring forward from the slide. Revolve the barrel bushing until it may be drawn forward from the slide. This releases the barrel, which, with the link, may be drawn forward from the slide, and by pushing out the link pin the link is released from the barrel.

Press the rear end of the firing pin forward until it clears the firing pin stop, which is then drawn downward from its seat in the slide; the firing pin, firing pin spring, and extractor are then removed from the rear of the slide.

The safety lock is readily withdrawn from the receiver by cocking the hammer and pushing from the right on the pin part or pulling outward on the thumb piece of the safety lock when it is midway between its upper and lower position. The cocked hammer is then lowered and removed after removing the hammer pin from the left side of the receiver. The housing pin is then pushed out from either side of the receiver, which allows the mainspring housing to be withdrawn downward and the grip safety rearward from the handle. The sear spring may then be removed. By pushing out the sear pin from the right to the left side of the receiver, the sear and the disconnector are released.

To remove the mainspring, mainspring cap, and housing pin retainer from the mainspring housing, compress the mainspring and push out the small mainspring cap pin.

To remove the magazine catch from the receiver, its checkered left end must be pressed inward, when the right end of the magazine catch will project so far from the right side of the receiver that it may be rotated one-half turn. This movement will release the magazine catch lock from its seat in the receiver, when the magazine catch, the magazine catch lock, and the magazine catch spring may be removed.

With the improved design of magazine catch lock the operation of dismounting the magazine catch is simplified in that when the magazine catch has been pressed inward the magazine catch lock is turned by means of a screw driver or the short leaf of the sear spring a quarter turn to the left when the magazine catch with its contents can be removed. The improved design will be recognized from the fact that the head of the magazine catch lock is slotted.

The trigger can then be removed rearwardly from the receiver.

The hammer strut or the long arm of the screw driver can be used to push out all the pins except the mainspring cap pin, lanyard-loop pin, and ejector pin.

To assemble the pistol, proceed in the reverse order.

It should be noted that the disconnector and sear are assembled as follows: Place the cylindrical part of the disconnector in its hole in the receiver with the flat face of the lower part of the disconnector resting against the yoke of the trigger. Then place the sear, lugs downward, so that it straddles the disconnector. The sear pin is then inserted in place, so that it passes through both the disconnector and the sear.

The sear, disconnector, and hammer being in place and the hammer down, to replace the sear spring, locate its lower end in the cut in the receiver, with the end of the long leaf resting on the sear; then insert the mainspring housing until its lower end projects below the frame about one-eighth of an inch, replace the grip safety, cock the hammer, and replace the safety lock; then lower the cocked hammer, push the mainspring housing home and insert the housing pin.

In assembling the safety lock to the receiver use the tip of the magazine follower or the screw driver to press the safety lock plunger home, thus allowing the seating of the safety lock. It should be remembered that when assembling the safety lock the hammer must be cocked.

When replacing the slide and barrel of the receiver, care must be taken that the link is tilted forward as far as possible and that the link pin is in place.

### METHOD OF OPERATION.

A loaded magazine is placed in the handle and the slide drawn fully back and released, thus bringing the first cartridge into the chamber. (If the slide is open, push down the slide stop to let the slide go forward.) The hammer is thus cocked and the pistol is ready for firing.

If it is desired to make the pistol ready for instant use and for firing with the least possible delay the maximum number of shots, draw back the slide, insert a cartridge by hand into

the chamber of the barrel, allow the slide to close, then lock the slide and the cocked hammer by pressing the safety lock upward and insert a loaded magazine. The slide and hammer being thus positively locked, the pistol may be carried safely at full cock, and it is only necessary to press down the safety lock (which is located within easy reach of the thumb) when raising the pistol to the firing position.

The grip safety is provided with an extending horn, which not only serves as a guard to prevent the hand of the shooter from slipping upward and being struck or injured by the hammer, but also aids in accurate shooting by keeping the hand in the same position for each shot; and, furthermore, permits the lowering of the cocked hammer with one hand by automatically pressing in the grip safety when the hammer is drawn slightly beyond the cocked position. In order to release the hammer, the grip safety must be pressed in before the trigger is pulled.

### SAFETY DEVICES.

It is impossible for the firing pin to discharge or even touch the primer, except on receiving the full blow of the hammer.

The pistol is provided with two automatic safety devices: (*a*) The automatic disconnector which positively prevents the release of the hammer unless the slide and barrel are in the forward position and safely interlocked; this device also controls the firing and prevents more than one shot from following each pull of the trigger. (*b*) The automatic grip safety at all times locks the trigger unless the handle is firmly grasped and the grip safety pressed in.

The pistol is in addition provided with a safety lock by which the closed slide and the cocked hammer can be at will positively locked in position.

### OPERATION IN DETAIL.

The magazine may be charged with any number of cartridges from one to seven.

The charged magazine is inserted in the handle and the slide drawn once to the rear. This movement cocks the

hammer, compresses the recoil spring and, when the slide reaches the rear position, the magazine follower raises the upper cartridge into the path of the slide. The slide is then released and, being forced forward by the recoil spring, carries the first cartridge into the chamber of the barrel. As the slide approaches its forward position, it encounters the rear extension of the barrel and forces the barrel forward; the rear end of the barrel swings upward on the link, turning on the muzzle end as on a fulcrum. When the slide and barrel reach their forward position they are positively locked together by the locking ribs on the barrel and their joint forward movement is arrested by the barrel lug encountering the pin on the slide stop.

The pistol is then ready for firing.

When the hammer is cocked, the hammer strut moves downward, compressing the mainspring, and the sear, under action of the long leaf of the sear spring, engages its nose in the notch on the hammer.

In order that the pistol may be fired the following conditions must exist: The grip safety must be pressed in, leaving the trigger free to move; the slide must be in the forward position, properly interlocked with the barrel, so that the disconnector is held in the recess on the underside of the slide under the action of the sear spring, transmitting in this position any movement of the trigger to the sear; the safety lock must be down, in the unlocked position, so that the sear will be unblocked and free to release the hammer, and the slide will be free to move back.

On pulling the trigger, the sear is moved and the released hammer strikes the firing pin which transmits the blow to the primer of the cartridge. The pressure of the gases generated in the barrel, by the explosion of the powder in the cartridge, is exerted in a forward direction against the bullet, driving it through the bore, and in a rearward direction against the face of the slide, driving the latter and the barrel to the rear together. The downward swinging move-

ment of the barrel unlocks it from the slide, and the barrel is then stopped in its lowest position. The slide continues to move to the rear, opening the breech, cocking the hammer, extracting and ejecting the empty shell and compressing the recoil spring, until it (the slide) reaches its rearmost position, when another cartridge is raised in front of it and forced into the chamber of the barrel by the return movement of the slide under pressure of the recoil spring.

The weight and consequently the inertia of the slide, augmented by those of the barrel, are so many times greater than the weight and inertia of the bullet that the latter has been given its maximum velocity and has been driven from the muzzle of the barrel before the slide and barrel have recoiled to the point where the barrel commences its unlocking movement. This construction, therefore, delays the opening of the breech of the barrel until after the bullet has left the muzzle and therefore practically prevents the escape of any of the powder gases to the rear after the breech has been opened.

This factor of safety is further increased by the tension of the recoil spring and the mainspring, both of which oppose the rearward movement of the slide.

While the comparatively great weight of the slide of this pistol insures safety against premature opening of the breech, it also insures operation of the pistol, because at the point of rearward opening movement where the barrel is unlocked and stopped, the heavy slide has attained a momentum which is sufficient to carry it through its complete opening movement and makes the pistol ready for another shot.

When the magazine has been emptied, the pawl-shaped slide stop will be raised by the magazine follower under action of the magazine spring into the front recess on the lower left side of the slide, thereby locking the slide in the open position, and serving as an indicator to remind the shooter that the empty magazine must be replaced by a charged one before the firing can be continued.

Pressure upon the magazine catch quickly releases the empty magazine from the handle and permits the insertion of a loaded magazine.

To release the slide from the open position, it is only necessary to press upon the thumb piece of the slide stop when the slide will go forward to its closed position, carrying a cartridge from the previously inserted magazine into the barrel and making the pistol ready for firing again.

### IMPORTANT POINTS.

Never place the trigger finger within the trigger guard until it is intended to fire, and the pistol is pointed toward the target.

Do not carry the pistol in the holster with the hammer cocked and safety lock on, except in an emergency, and when so carried care must be exercised to see that the safety lock does not become disengaged during the removal of the pistol from the holster.

The pistol must be kept clean, free from rust, and properly oiled. Excessive oil left in the mechanism will cause the parts to gum and work stiffly; and when fired will throw oil in the shooter's face.

Care must be exercised in inserting the magazine to insure its engaging with the magazine catch, otherwise in the act of loading the slide will not strip the first shell out of the magazine and into the barrel.

Pressure must be entirely relieved from the trigger after each shot in order that the trigger may reengage with the sear.

To remove cartridges not fired, disengage the magazine slightly and then extract the cartridge in the barrel by drawing back the slide.

Care must be exercised to insure that the disconnector is properly assembled to the sear.

The hammer should not be snapped when the pistol is partially disassembled.

The stocks need never be removed, as the pistol can be dismounted and assembled without removing them, there being no mechanism under the stocks.

Use no hammer, either in assembling or dismounting.

Magazine: Reasonable care should be taken to see that the magazine is not dented or otherwise damaged. In filling the magazine care must be taken to insert the shell in such a manner that it will not touch the lips of the magazine until after it is in place in the magazine.

Never insert the magazine and strike it smartly with the hand to force it home, as this may spring the base or the inturning lips at the top. It should be inserted by a continuous pressure.

### DRIFT OF BULLET.

The drift or deviation due to the rifling is in this pistol to the left. The drift is slight at short ranges and that for long ranges is immaterial, as the pistol is a short-range weapon.

### PENETRATION.

*Penetration in white pine.*

| Range (yards). | Depth (inches). | Range (yards). | Depth (inches). |
|---|---|---|---|
| 25 | 6.0 | 150 | 5.2 |
| 50 | 5.8 | 200 | 4.6 |
| 75 | 5.6 | 250 | 4.0 |
| 100 | 5.5 | | |

A penetration of one inch in white pine corresponds to a dangerous wound.

The penetration in moist loam at 25 yards is 9.95 inches.

The penetration in dry sand at 25 yards is 7.8 inches.

### TRAJECTORY.

The maximum ordinate for the range of 250 yards is 4.28 feet at 126 yards from the muzzle. The trajectory is very flat up to 75 yards, at which range the pistol is accurate.

With the angle of departure equal to 45°, the range is approximately 1,955 yards, the maximum ordinate of the trajectory being 2,219 feet.